Amendments to the Claims

1 – 8. Cancelled

9. (New) An amplifier node for an optical network comprising:

at least one input port receiving an incoming optical wavelength-multiplex signal;

a pre-amplifier receiving the incoming optical wavelength-multiplex signal;

a continuous, wavelength-selectively reflective structure comprising a merged demultiplexer and multiplexer, wherein the demultiplexer is configured to split the amplified incoming optical wavelength-multiplex signal at least into payload channels and a supervisory channel, and the multiplexer is configured to assemble the payload channels and the supervisory channel into an outgoing optical wavelength-multiplex signal, the continuous, wavelength-selectively reflective structure including

a first gate receiving the incoming wavelength-multiplex signal from the pre-amplifier,

a second gate outputting the supervisory channel to an amplifier,

a third gate receiving the supervisory channel from the amplifier, and

a fourth gate outputting the outgoing optical wavelength-multiplex signal;

a dispersion compensator receiving the outgoing optical wavelength-multiplex signal; and

a post-amplifier receiving a dispersion compensated outgoing optical wavelength-multiplex signal and transmitting an amplified dispersion compensated outgoing optical wavelength-multiplex signal;

wherein the continuous, wavelength-selectively reflective structure is adapted to split off and to insert as the supervisory channel a wavelength, the attenuation of which between the input port and the amplifier is substantially the same in a pumped state and an unpumped state of the pre-amplifier and post-amplifier.

10. (New) The amplifier node of claim 9 wherein the amplifier comprises an erbium-doped fiber amplifier, and wherein the wavelength of the supervisory channel is between about 1600 and 1650 nm.

11. (New) The amplifier node of claim 10 wherein the wavelength of the supervisory channel is between about 1610 and 1650 nm.

12. (New) The amplifier node of claim 9 wherein the amplifier comprises an active medium in series with a leveling filter to level a gain of the active medium in the wavelength band of the payload channels, and wherein the leveling filter is transparent for the supervisory channel.

13. (New) The amplifier node of claim 11 wherein the active medium is placed before the filter in the amplifier.

14. (New) The amplifier node of claim 11, wherein the active medium is placed behind the filter in the amplifier.

15. (New) An optical network, comprising:

an optical fiber to transmit an optical wavelength-multiplex signal comprising payload channels and a supervisory channel;

a transmitter node comprising:

at least one input port receiving an incoming optical wavelength-multiplex signal;

a pre-amplifier receiving the incoming optical wavelength-multiplex signal;

a continuous, wavelength-selectively reflective structure comprising a merged demultiplexer and multiplexer, wherein the demultiplexer is configured to split the amplified incoming optical wavelength-multiplex signal at least into payload channels and a supervisory channel, and the multiplexer is configured to assemble the payload channels and the supervisory channel into an outgoing optical wavelength-multiplex signal, the continuous, wavelength-selectively reflective structure including

a first gate receiving the incoming wavelength-multiplex signal from the pre-amplifier,

a second gate outputting the supervisory channel to an amplifier,

a third gate receiving the supervisory channel from the amplifier, and

a fourth gate outputting the outgoing optical wavelength-multiplex signal;

a post-amplifier outputting the outgoing optical wavelength-multiplex signal onto the optical fiber; and

a dispersion compensator interposed between the continuous, wavelength-selectively reflective structure and the post-amplifier; and

a receiver node to receive the optical wavelength-multiplex signal from the transmitter node, the receiver node comprising:

a second demultiplexer configured to split the optical wavelength-multiplex signal into the supervisory channel and the payload channels; and

a sink for the supervisory channel;

wherein the multiplexer and demultiplexer are adapted to insert and extract, respectively, as the supervisory channel, a wavelength into/from the optical wavelength-multiplex signal, the attenuation of which between the amplifier and the sink is substantially the same in pumped and unpumped states of the pre-amplifier and the post-amplifier.

16. (New) The optical network of claim 15 wherein the amplifier comprises an erbium-doped fiber amplifier, and wherein the wavelength of the supervisory channel is between about 1600 and 1650 nm.

17. (New) The optical network of claim 16 wherein the wavelength of the supervisory channel is between about 1610 and 1650 nm.

18. (New) The optical network of claim 15 wherein the amplifier comprises an active medium in series with a leveling filter that levels the gains of the payload channels, and wherein the leveling filter is transparent to the supervisory channel.